

REMARKS

Reconsideration is respectfully requested.

Status of Claims

Claims 1 through 37, 44, and 45 have been cancelled.

No claims have been withdrawn.

No claims have been added.

Therefore, claims 38 through 43 and 46 through 67 are under consideration in this application.

Paragraph 2 of the Office Action

Claim 67 has been objected to for the informalities noted in the Office Action.

Claim 67 has been amended in a manner believed to clarify any informalities in the language. Specifically, in line 2 of the claim “define” has been amended to read –defines--.

Withdrawal of the objection to claim 67 is therefore respectfully requested.

Paragraph 3 of the Office Action

Claims 38 through 43 and 46 through 67 have been rejected under 35 U.S.C. Section 103(a) as being unpatentable over Harris in view of Wenham.

As previously noted, claim 38 requires, in part, “wherein the housing completely encloses the air-bag”. Claim 46 includes the requirement of “wherein the housing abuts against substantially an entire circumference of the air-bag”. Claim 47 requires in part “wherein the housing extends along and about an entire extended length of the air-bag”.

In the rejection of the pending claims, the Harris patent is again relied upon as allegedly disclosing various elements of the claims. However, it is conceded in the rejection that "Harris does not disclose that his housing completely encloses the air bag", but then it is asserted that:

Wenham is relied upon merely for his teachings of an air bag suspension system (see the Figure) forming a shock absorber 5 which includes at least one air bag, the air bag is completely enclosed within a housing assembly (see the Figure and the outer housing for the air bag of assembly 5).

And it is further asserted that:

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed the air bag suspension system of Harris to include an air bag enclosed completely within a housing assembly as taught by Wenham as an effective means of sealing the air bag from the environment. By constructing the air bag to be fully enclosed within the housing assembly, outside dirt, debris, and other such contaminants would be prevented from damaging the air bag.

However, as was previously stated with respect to the earlier cited Valdespino patent, one of ordinary skill in the art, considering the discussion in the Harris patent, would not be led to modify the Harris apparatus with aspects of the Wenham patent in the manner alleged to be obvious in the rejection.

Moreover, it is not seen (and not explained in the rejection of the Office Action) how the teaching of the Wenham patent differs in any significant way from the teaching of the Valdespino patent with respect to the failure of the Valdespino patent (and now the Wenham patent) to provide one of ordinary skill in the art with any motivation or suggestion to completely abandon the "side acting force" that is the primary object of the Harris apparatus as disclosed in the Harris patent.

More specifically, the Harris patent describes a “horizontal side load” effect that is caused by the use of a “*partial* restraining sleeve” in the Harris apparatus. As one example of this teaching by Harris of the importance of the use of the partial sleeve, the Abstract of Harris states that (emphasis added):

A vehicle suspension strut incorporating an airspring around a hydraulic shock absorber is disclosed. The unique airspring design and orientation relative to the shock absorber axis creates a side acting force which counteracts the bending torque acting on the strut during operation in a vehicle and prevents binding of the shock absorber piston. The horizontal side load is achieved using a partial restraining sleeve which circumferentially shrouds the flexible member of the airspring. The partial restraining sleeve extends less than half way around the circumference of the airspring flexible member and has a radius less than the fully inflated radius of the flexible member thereby creating a restraining force on only one side of the flexible member of the airspring.

Thus, it is clear to one of ordinary skill in the art from the Abstract of Harris that the key function of the apparatus is the creation of a horizontal “side acting force”, and also that the key to creating this side acting force is a “*partial* restraining sleeve” that “extends *less than half way* around the circumference of the air spring flexible member”. It is submitted that this literal and explicit discussion in the Harris patent would not reasonably lead one of ordinary skill in the art to the allegedly obvious modification of the Harris patent set forth in the rejection. In fact, one of ordinary skill in the art would read Harris as teaching against any modification of the Harris sleeve that would destroy or counteract the creation of the side acting force by the partial restraining sleeve—such as by the allegedly obvious adoption of the structure of the Wenham strut, or any attempt to “completely enclose” the flexible member of Harris, as this would eliminate the “side acting force” that is the crux of the Harris apparatus.

Further, Harris states at col. 1, lines 40 through 64 that (all emphasis added):

The *object* of this invention is to provide a suspension strut utilizing an airspring which generates *side load* compensating force. The force counteracts the bending torque created by the mass of the vehicle in operation and minimizes stiction in the hydraulic damper of the strut. This yields a softer ride. The airspring gives the ability to achieve variable spring rates as well as a constant vehicle height maintainable regardless of load by adjusting the internal pressure of the airspring portion of the strut. The *side load compensating force* is achieved by utilizing a *partial* restraining sleeve which restricts the radial expansion of the flexible member of the airspring around a *limited portion* of the circumference of the airspring. The partial restraining sleeve is positioned diametrically opposite to the line of action desired for the side load compensating force. The point of contact of the partial restraining sleeve to the flexible member is at a lesser distance from the strut axis than the unrestrained inflated radius of the flexible member of the airspring. This restraint of the flexible member on only a portion of its circumference creates a side load compensating force on the airspring portion of the strut thereby providing the ability to offset the bending torque exerted by the sprung mass of the vehicle in which the suspension strut is mounted.

It is submitted that this statement in the Harris patent that creation of the side load force is *the object* of the Harris system could only lead one of ordinary skill in the art away from the allegedly obvious modification set forth in the rejection—and is further evidence of the “non-obviousness” of the modification of Harris proposed in the rejection. One of ordinary skill in the art would recognize that “completely enclosing” the flexible member of the airspring, as it is alleged in the rejection that Wenham teaches, would completely eliminate this primary objective of the Harris patent and its airspring. Harris includes other statements along these lines that will not be further discussed for the sake of brevity.

It is well established in the patent law that a proposed modification is not considered to be “obvious” if it renders the prior art structure unsuitable for its intended purpose. See MPEP §2143.01(V), where it is stated that (underline emphasis added):

If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)

It is submitted that any attempt to “completely enclose” the flexible member of Harris using the structure of Wenham would eliminate the side acting force of the Harris structure (as the “side load” would be applied to all sides of the flexible member) and thus the eccentric loading of the flexible member achieved by the partial sleeve would be lost.

Further, it is noted that even the embodiment shown in Figure 4 of the Harris patent is discussed with a gap between a portion of the “can 71” and the flexible member 56. See, e.g., Harris at col. 6, lines 13 through 33 (emphasis added):

FIG. 4 is identical in all respects to FIG. 3 except that the detachable volume can 71 includes around its full circumference an annular volumetric cavity 76 around the flexible member 56. The volume can in this embodiment serves as a full circumference restraining cylinder and yet is detachable to change the effective volume of the internal working cavity 58 of the airspring. It is to be noted that the volume can may preferably be oval or oblong in radial cross sectional shape such that the restrained radius 80 is less than the unrestrained radius 82 where both radii are measured from the centerline 62. Thus the unrestrained radius 82 is equal to or greater than the inflated radius 84 of the flexible member 56, while the restrained radius 80 is less than the inflated radius 84 of the flexible member 56. This configuration yields a side load force F normal to the center of the contact area 86 between the flexible member 56 and the restraining radius side 90 of the volume can 71. This side 90 serves as a partial restraining sleeve as described in other embodiments.

Indeed, it is submitted that the partial restraint--which is the primary and singular thrust of the Harris patent--could only lead one of ordinary skill in the art away from the modification of the Harris apparatus that is proposed in the rejection of the Office Action.

Finally, with respect to the assertion in the Office Action that the allegedly obvious modification of Harris with the structure of Wenham

would be obvious “as an effective means of sealing the air bag from the environment” and that “[b]y constructing the air bag to be fully enclosed within the housing assembly, outside dirt, debris, and other such contaminants would be prevented from damaging the air bag”, it is noted that neither Harris nor Wenham recognizes that there is a need for “an effective means of sealing the air bag from the environment” or that that is a problem with “outside dirt, debris, and other such contaminants... damaging the air bag”. Perhaps most importantly, there is nothing in Harris or Wenham that establishes to one of ordinary skill in the art that these “problems” set forth in the Office Action justify the abandonment of the primary purpose of the Harris apparatus in order to address them. Certainly common sense does not lead one of ordinary skill in the art to “render the prior art invention being modified unsatisfactory for its intended purpose” of creating the side action force and horizontal side load in a vehicle suspension.

It is therefore submitted that the cited patents, and especially the allegedly obvious combination of Harris and Wenham set forth in the rejection of the Office Action, would not lead one skilled in the art to the applicant’s invention as required by claims 38, 46 and 47.

Withdrawal of the §103(a) rejection of claims 38 through 43 and 46 through 66 is therefore respectfully requested.

CONCLUSION

In light of the foregoing amendments and remarks, early reconsideration and allowance of this application are most courteously solicited.

Respectfully submitted,

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